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ABSTRACT

Research into three major aspects of elementary school climate are reported in this paper. The first aspect concerns distinct conditions of similarity and variance among elementary schools as perceived by students. Differences between how students and teachers review schooling are investigated. Finally, the relationship between behavior of the school principal, the school staff, and educational environment is documented. Research data were collected from almost 10,000 students in 90 demographically different elementary schools. Findings resulting from an analysis of data from this sample were used to describe environmental similarities and differences. Fifty-four schools were randomly selected from a sample of all elementary schools in Massachusetts. The Elementary School Environment Survey (ESES) was administered in the remaining 36 selected schools. Student responses from these schools supplemented with perceptions from 600 teachers were also used to examine the educational environment. Results of the study indicate several specific similarities and differences among elementary schools, significant differences between students and teachers in their perceptions of educational environment, and an existing relationship between desirable educational environments and principal and teacher behavior. A 19-item bibliography is included. (Related documents are SP 005 827 and SP 005 837.) (MJM)

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Explorations in Perceived Educational Environment: Contextual Dimensions of Elementary Schooling

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*Over the past three years Jon S. Bender, A. Bruce McKay, and David G. Sadker have joined me in an inquiry of educational environment. We have attempted to give a direction to environmental studies that centers on the perceptual reality of elementary schooling. This approach is important because data that equip an elementary school to view itself through the eyes of participants have implications for institutional responsiveness and improved educational practice. This paper reports findings of our collaborative effort.

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Research into three major aspects of elementary school climate are reported in this paper. First, district conditions of similarity and variance among elementary schools as perceived by students are examined. Next differences between how students and teachers view schooling are investigated. Finally, the relationship between behavior of the school principal, the school staff, and the educational environment is documented.

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During the past decade there has been a significant upsurge in the amount of research done on human environments. The mounting number of investigations designed to explain environments center on describing conditions and forces existing in homes, in colleges and universities, and, to a more limited degree, in secondary schools. Some of these studies examine the amount of influence an environment has on developing particular human characteristics. Others explore ways of describing and measuring environment within which learning, growth, and development is likely to take place. Although the importance of early environment is recognized and supported by researchers, environmental studies have not yet found their way into that corner of the young childs universe called elementary school. The substance of this paper represents an initial attempt to correct this unfortunate void in research of elementary school educational environment.

Research into three major aspects of elementary school climate are reported in this paper.[1] First, distinct conditions of similarity and variance among elementary schools as perceived by students are examined. Next, differences between how students and teachers view

schooling are investigated. Finally, the relationship between behavior of the school principal, the school staff, and the educational environment is documented. This three-fold approach to better understanding of the reality of elementary schooling is a vital one because it provides information about how participants (students and teachers) see the school. Such information is important because data that equip an elementary school to view itself have implications for improved educational practice.

Research data for this study were collected from almost 10,000 students in ninety demographically different elementary schools. Fifty-four schools were selected randomly from a sample of all elementary schools in Massachusetts. Findings resulting from an analysis of data from this sample were used to describe environmental similarities and differences. The remaining thirty-six schools were purposefully selected for their expressed desire for innovation. An examination of the characteristics of the selected schools showed that they were widely representative along the dimensions of enrollment, socioeconomic class, per pupil expenditure, and so on. Student responses from these schools, supplemented with perceptions from six hundred teachers, were used to examine the remaining two aspects of educational environment reported in this chapter. The Elementary School Environment Survey (ESES) was administered to determine the educational climate in all schools sampled. The results of the inquiry are reported in the following three sections.

Selected Characteristics of Elementary School Environment

In this first section, environmental similarities and differences on statements about conditions and happenings in sampled schools are described. The perceptions that students have toward their schools

call attention to very specific dimensions of school life. The purpose of reporting these characteristics is not to label schooling good or bad. Rather, the intention is to describe the nature of educational environment as it is currently perceived, to gain a perspective on what the school is like.

Similarities

One way to look at similarity among environments is to examine the percent of students from each school who responded to questions according to high consensus. Such an analysis of the distribution of schools on each statement constituting ESES was undertaken to determine if schools clearly were similar on any single items. Statements revealing similarities or eliciting the greatest consensus among students were identified by setting a cut off point of seventy-five per cent agreement. Percentage distributions indicating such dominate perceptions are presented in Table 1. To illustrate, the table lists statements in decending order of agreement. The exact percentage of student response and the direction of response is shown in the next column. This list represents a description of institutional similarities of particular environment conditions.

The statement reporting school atmosphere which received the greatest degree of consensus was concerned with academic grades and student effort. Over eighty-five percent of the students indicated that a teacher will raise a student's grade if he believes the student has worked hard. While it is hazardous to attempt complete explanation of the cause for this response, some speculative comments are possible.

Table 1

Statements Eliciting The Greatest Consensus From Massachusetts Elementary School Students

STATEMENT	MEAN PERCENTAGE
Teachers will raise a student's grade if they think the student has worked hard.	85.38% True
In this school students ask other students to visit them at home.	85.31% True
In many classes, students sit in any seat they choose.	84.38% False
Bells ring during the day to tell students what work to do next.	84.33% False
In this school students usually have to line up before going into the classroom.	82.17% True
Social Studies is not a very important subject in this school.	81.85% False
Most teachers do not try to get students interested in what's going on in the United States.	81.61% False
Most of the teachers are very hard workers and they think that the students should be hard workers too.	81.21% True
Students get good grades without spending must time studying.	81.08% False
Most of the teachers do not care about problems that students are having.	80.94% False
Most students finish the projects and assignments that they start.	80.80% True
Science is the most important course in this school.	79.81% False
This school seems to be an unfriendly place.	79.44% False
Most of the teachers in this school are unfriendly.	79.17% False

Table 1 (continued)

STATEMENT	MEAN PERCENTAGE
Most students are happy if they do average work.	78.61% True
In this school it is easy to pass most subjects without working hard.	77.43% False
Students know they should check with the teacher before they do something that might break a school rule.	77.02% True
The subjects taught here do not help students learn how to solve real problems.	76.78% False
Teachers are kind and friendly when they work with students.	75.57% True
Many students often talk about what is right or wrong.	75.09% True

The results indicate that the value of work for its own sake holds credence in the public elementary schools. Furthermore, the largest cluster of statements receiving a sizeable consensus were concerned with this work ethic. The following statements for example, fit into this general category: 1) "Most students are happy if they do average work," was reported with a mean of seventy-eight percent true. This suggests the added dimension that the pursuit of excellence may be less of a goal than achieving an average grade. 2) "Most of the teachers are very hard workers and they think that the students should work hard too," was answered true by a mean of over eighty-one percent. 3) "Students get good grades without spending much time studying." This item received a mean response of over eighty-one percent in the negative. 4) "In this school it is easy to pass most subjects without working hard," was answered false by a mean of over seventy-seven percent. The concept of "work" may be overvalued in terms of how learning takes place and at the expense of productive play.

Additional conditions and happenings concerned with work orientation center on the importance of various academic subjects, finishing projects and assignments, and the ability of teachers in getting students interested in the United States. These items add additional support to the emphasis on the work ethic existing in elementary schools.

The sampled elementary students also indicate a consensus of responses clustering around inter-personal relations. Specifically, students reported that schools, teachers, and other students are responsive and friendly. For example, statements suggesting that teachers and

schools are unfriendly received a mean response of about eighty percent false. To the item, "In this school students ask other students to visit them at home," over eighty-five percent of the students responded true. Over eighty percent of the students responded to the statement, "Most of the teachers do not care about problems that students are having," as false. Furthermore, seventy-five percent of the respondents cited support for the condition that teachers are kind and friendly when they work with students. Students confirm, then, that there is a friendliness and personal concern present in their elementary schools. Students and teachers react warmly toward each other, in spite of some impersonal institutional features.

The third and final group of high consensus statements are associated with a procedural and routine similarity. One item indicated that students sit in any seat they choose. It received a strong response in the negative, over eighty-four percent false. The statement, "Students know they should check with the teacher before they do something that might break a school rule," received a positive response of over seventy-seven percent.

Also, students agreed that bells generally do not ring to tell students what work to do next. This statement is somewhat out of line with other procedural statements which tend to indicate a fairly rigid operation. The reason for this response is open to conjecture, yet one possible explanation might be that although time schedules are still maintained, the ringing of bells to signal schedule phases has decreased in popularity. Another item supporting the existence of a generally

rigid structure states: "In this school students usually have to line up before going into the classroom." There was a high agreement of more than eighty-two percent among students that this condition was true. It seems that there is more stress placed on procedural issues than is likely warranted in terms of student needs.

In summary, statements having a high consensus among students indicate three conditions in which schools are similar:

- The concept of work, as distinct from the products of work, is highly valued. Teachers value work, and good grades are awarded to students who are perceived as good workers.
- Schools are perceived as being warm and friendly places. Students and teachers are friendly to one another and are concerned about one another.
- Schools are similar in their emphasis on many procedural happenings. Students are aysigned seats, made to line up before entering classrooms, and are generally aware of the importance of following school rules.

Differences

Statements in ESES also provide information concerning differences among schools. However, these items tend to be more difficult to categorize than those statements which indicate similarities. One way to determine differences is to identify statements receiving the greatest standard deviations and thus detecting the greatest spread among schools. A standard deviation of seventeen or greater was selected as

an arbitrary cut off point for reporting conditions in which schools differ most significantly. Nine items meeting the standard deviation criterion were identified and are presented in Table 2.

Two statements were concerned with how students take care of school property. Whether students mark or break school property is a condition which differentiates among schools. Activities conducted in school that are different from the average classroom sessions comprise the second category. Schools seem to differ on the extent to which they vary from routine lessons as witnessed by items that stress parties in class to celebrate birthdays or other important days, visitations by outside people, whether classes go on field trips.

The remaining items can most clearly be considered separately. The item differentiating most among schools was stated, "Students have to stay after school if they break school rules." The statement, "Many students like to stay around after school gets out," was also effective in attaining a varied set of responses from the sampled schools. Although these statements are distinct from one another, they do share at least one common characteristic--both are concerned with school openness and availability after regular hours. Also, according to the findings related to the remaining items schools differ significantly in two procedural ways, the amount of homework assigned and whether or not the attendance role is called each day.

In summary, those items that differentiate among schools suggest that elementary schools differ in the following practices:

Table 2

Statements Resulting In The Greatest Standard Deviation In Massachusetts Schools

STATEMENT	STANDARD DEVIATION
Students have to stay after school if they break school rules.	23.90
Most students here have homework many times during the week.	21.14
Students often take field trips to interesting places.	20.08
Many students like to stay around after school gets out.	20.06
Many interesting people visit the school to play music or to talk about their experience.	19.63
The attendance role is called every day in class.	19.17
In this school students have parties in class to celebrate birthdays or other important days.	18.03
Students often break or mark school property.	17.53
Students here are careful about taking care of school property.	17.10

- Schools differ in the care, or lack of care, of school property.
- The degree to which schools conduct activities other than routine classwork is another difference. Such activities as visiting lecturers, class celebrations, and field trips were common occurances for some schools while others seemed to never extend activities beyond the conventional schedule.
- The degree to which students willingly or by force stay in school after school hours also differs widely from institution to institution.
- Schools differ in the amount of homework assigned and in whether the attendance role is called on a regular basis.

Discussion

The data accumulated indicate several specific similarities and differences among the elementary schools, some of which demand further comment. Schools, for example, appear to emphasize the value of work for its own sake, as well as the importance of procedures and rules. These data tend to support the findings of such contemporary critics of schooling as Silberman,[2] Goodman,[3] Illich,[4] and Goodlad.[5] Silberman, for example, refers to the over emphasis on structure and form in our schools, suggesting that procedures are often emphasized to the extent of sacrificing educational goals and common sense.

As mentioned previously, a number of statements which were concerned with work received high student consensus. Student perceptions suggest that emphasis is not on the quality of their work but rather on

how hard they worked. This is not to infer that performance is being considered according to individual differences among students. Rather, the emphasis is on whether students did or did not work; and work is often seen as the opposite of play. Silberman points out that this dichotomy between work and play is both common and unfortunate. Much learning occurs through "play." The appearance of "work" is not necessarily indicative of a productive experience. Yet, in simple terms, schools often view work as good and play as bad. We stress the importance of viewing the results of schooling, and see no contradiction between learning and informal environments that are play oriented.

Although students reported that schools are concerned about rules and regulations, they also stated that schools and teachers are friendly and responsive. Possibly some of the impersonal institutional characteristics so often cited by critics of schooling never reach their complete dehumanizing impact on learners because teachers restructure the impersonal priorities and provide a measure of consciousness in the process of schooling. The evidence from this part of the investigation can be interpreted as suggesting that elementary schools often emphasize seemingly mindless practices and procedures, and that personal relations among students, and between students and teachers, still provide a measure of humaneness within elementary schools.[6]

Also, schools are perceived by students to differ in environment. Happenings like students desiring to stay after school, the amount of homework, staying after school for punishment, and so on are somewhat tangential to ongoing school programs. However, conditions that tended

to differentiate among schools are control and discipline oriented and are likely important to attitude and motivation development in students. The fact that schools vary along these dimensions suggests that some educational programs are more exciting and sensitive than others.

Many of the decisions that foster learning outside the classroom, special celebrations, and exposure to talented people are made by teachers. A major factor influencing such decision-making is how educational environment is perceived by teachers responsible for instructional and curricular programs. If the environment is considered to be appropriate for learners and if present programs are resulting in an education climate perceived by teachers to be desirable, then it is unlikely that teachers will see the need for building new environments or for adopting new programs. On the other hand, students might see the environment as being much different from the way teachers view it. Teachers, based on their perceptions, could maintain and perpetuate conditions and happenings of schooling that are perceived by students as inappropriate, confusing, or opposite from what is intended. The next section of this paper, therefore, centers on variance between student and teacher perceptions of educational environment.

Students and Teachers View Educational Environment

The major purpose of the second section is to compare student and teacher perceptions of educational environment along six variables measured by the Elementary School Environment Survey (ESES). The revised forty-two item survey assesses individual perceptions of Alienation,

Humanism, Autonomy, Morale, Opportunism, and Resource. These variables were developed by intensive factor analytic procedures.[7] In simple terms, this section describes whether students and teachers view elementary schools in the same way.

A second sample of demographically different schools from Massachusetts that had expressed an interest in adopting innovations was used for this part of the investigation. Table 3 reports the representativeness of the sampled schools. Over 4,000 students and 600 teachers in thirty-six schools participated in this aspect of the study.[8] The ESES was adapted so that it was possible to collect data from both students and teachers. By comparing perceptions, it will be possible to arrive at a clearer understanding of the relationship between the perceptions of two fixed populations within the school environment. Such a comparison will permit school staffs to detect if their program expectations are being implemented and to identify needed changes in the environment. It was thought that elementary schools committed to innovation would provide an active educational environment for determining possible ways that perceptions of students and teachers might differ.

Perceptions of Students and Teachers

To determine if students and teachers perceive the environment to be significantly different, an analysis of variance was performed on the collected data. First, the thirty-six school scores for students and teachers made up two cells of a one-way analysis of variance design.

Table 3

School Demographic Information

Code Number	Type of School	School Enrollment	Approximate Socio-Economic Class	Number of Pupils in School District	Per-Pupil Expenditure	Population of Municipality	Classification of Municipality[1]
000	1-5	440	Lower Middle	3733	$478	15,200	City
001	K-6			6342		40,000	Urban Town
002*	K-8	251	Middle	*	$250*	175,000	City (*Catholic School
003	K-6	748	Middle	6910	$528	43,000	City
004	K-6	800	Heterogenous	5366	$835	13,000	Town
013	K-5	510	Lower Middle	4699	$716	2,600	Town
014	K-6	433	Upper Middle	2714	$675	5,400	Town
100	K-5	310	Middle	14793	$756	62,000	Urban Town
101	K-6	600	Upper Middle	2714	$675	5,400	Town
102	K-6	380	Middle	386	$612	1,350	Town
103	1-5	723	Lower Middle	4054	$490	18,000	Urban Town
110	1-6	860	Middle	3738	$478	15,200	City
112	K-6	323	Middle	18219	$950	89,000	City
114	1-6	818	Upper Middle	841	$699	1,900	Town
121	1-6	480	Not Given	3561	$515	20,500	Urban Town
200	K-8	435	Middle	*	*	*	*State College Lab
202	K-6	450	Middle	2698	$800	2,718	Town Scho
203	4-6	390	Upper Middle	992	$850	8,242	Town
212	K-6	225	Lower Middle	3312	$600	19,000	City
213	K-6	271	Middle	3312	$600	19,000	City

Table 3 Continued

Code Number	Type of School	School Enrollment	Approximate Socio-Economic Class	Number of Pupils in School District	Per-Pupil Expenditure	Population of Municipality	Classification of Municipality
300	K-6	465	Upper Middle	7571	$796	31,200	Urban Town
301	K-6			7571	$796	31,200	Urban Town
304	K-6	398	Middle	7571	$796	31,200	Urban Town
311	K-6	489	Middle	7571	$796	31, 200	Urban Town
313	K-6	410	Upper	7571	$796	31,200	Urban Town
330	1-6	350	Middle	2984	$550	600	Town
331	K-6	476	Lower Middle	2984	$550	2,385	Town
332	1-6	345	Middle	2984	$550	5,000	Town
333	1-6	411	Middle	2984	$550	5,000	Town
342	K-6	609	Upper Middle	7571	$796	31,200	Urban Town
343	K-6	345	Upper Middle	7571	$796	31,200	Urban Town
400	1-5	254	Lower Middle	4034	$550	16,000	Urban Town
410	K-5	476	Middle	3187	$517	11,000	Urban Town
411	K-6	547		5800		11,000	Town
420	K-5	364	Lower Middle	14713	$756	62,000	Urban Town
422	K-6	645	Upper Middle	4396		23,200	Urban Town

[1]According to 1970 Edition of the COMMERCIAL ATLAS AND MARKETING GUIDE, Rand McNally & Co.

The results of this analysis determine whether perceptions of each environmental variable differ significantly across all sampled schools. Second, the individual student and teacher scores for each variable within a single school were used for a one-way analysis of variance. The results of this analysis determine if within each single school students and teachers differ significantly in their perceptions of environment. In addition, perceptions were examined to see if teachers score consistently higher or lower than students on particular variables. For purposes of the present investigation, it is necessary to have individual student and teacher scores on each variable. Responses to items in ESES according to the keyed direction are considered correct responses. The sum of the correct responses for a particular variable constitutes the individual score for that variable. A mean of the student scores is calculated to derive a school score for each variable. The findings about how teachers and students view the schools are reported below according to the six environmental variables measured.

Alienation

Alienation describes the school in terms of involvement and a sense of belonging. A low score on this factor suggests that students sense a congenial and cohesive atmosphere characterized by togetherness. A high score demonstrates a feeling of estrangement. The results of the analysis among school scores indicated that student and teacher perceptions of Alienation were significantly different beyond the .01 level of

confidence. An analysis of perceptions within individual schools, indicated that significant differences existed in twenty-three of the sampled schools. Thus, students and teachers tend to view the Alienation climate of elementary schools in different ways. The direction of the varied perceptions was consistent because student scores for Alienation were always higher than teacher scores. In other words, students perceived the environment as a less congenial and involving place than did teachers.

Humanism

Humanism, in part, reflects a concern for the individual. A high score on Humanism indicates an environment that places value on creativity and aesthetic expression as well as individuality. Analysis of variance across schools indicated that students and teachers perceived the school to be significantly different with respect to Humanism beyond the .01 level. Also, in twenty-nine schools, the perceptions between students and teachers were significantly different. Furthermore, the difference in perceptions had a directional tendency. Across all schools, teacher scores were higher than student scores, indicating that teachers see the school as a place with more concern for individuals and creativity than do the students.

Autonomy

Autonomy in a school environment reflects the degree of independence and initiative a study is encouraged or allowed to express. A high score on this factor indicates a climate marked by an emphasis on

individual differences and the free expression of these differences. As was true for the previous two variables, analysis across schools indicated that students and teachers perceive the educational climate in significantly different ways.

Examination of variance between student and teacher perceptions within individual schools supports the findings of perceptual differences. Twenty-one schools yielded significant differences in perceptions toward Autonomy. Although fifteen schools showed no significant differences, the analysis of variance across schools and the majority results within schools indicate that students perceive Autonomy differently than do teachers. Also, an examination of scores reveals that in each school teachers scored higher on Autonomy than students.

Morale

Morale centers on student attitude toward school. A high score on Morale reflects the presence of a friendly and cheerful school climate. Analysis of perceptions across schools indicated that students and teachers perceive Morale to be significantly different beyond the .01 level. Analysis of scores within schools shows that in thirty-two schools the variance between student and teacher perceptions was equally significant. These findings show that students and teachers differ to a great extent with regard to their perceptions of Morale. As was the trend with the previous variables, teachers perceived Morale in the schools as being higher than did the students.

Opportunism

The variable Opportunism describes behavior which adapts to expediency or circumstance. A high score on this factor indicates a school climate in which knowing how to behave with seemingly powerful and important people is a key to academic and social success. Unlike the other variables, the analysis shows that there was no significant difference between student and teacher perceptions, their views were about the same. There was a tendency, however, for students to view the school somewhat less Opportunistic than did the teachers.

Resource

The factor Resource reflects the availability of learning resources. A high score on this factor suggests that written materials, field trips, television, exhibits, and so on are readily available for student use. The variance in perceptions across schools reveals that students and teachers perceive the environment to be significantly different with regard to Resource. Analysis within each school indicated that in twenty-four schools no significant differences exist between students and teachers. However, in several schools the differences approached the .05 level of significance. It can be stated that as a result of the across school analysis and the tendency of the within school analysis, students and teachers perceived Resource in significantly different ways. Yet, the differences in perceptions are not at the same level of confidence as those associated with Alienation, Humanism, Autonomy, and Morale. An examination of scores for Resource did show that teachers saw the school as providing a greater number of

materials and experiences than did the students.

In summary, the findings show that students and teachers differ significantly in their perceptions of educational environment. Also, teachers score significantly higher on Humanism, Autonomy, Morale, and Resource, and lower on Alienation than do students. Although teachers tended to score higher on Opportunism, little confidence can be placed in this finding since the differences in scores are not statistically significant.

Discussion

Another way to determine how teachers and students view their schools is to plot the variable scores for each school. An examination of the profiles show that schools which scored high on the environmental variables of Morale, Humanism, Autonomy, and Resource had a greater difference in their scores than schools which scored low. The profile for Alienation portrays a similar pattern, but in the opposite direction, as the difference scores become smaller, student and teacher scores get higher. The Opportunism profile revealed no discernable pattern. These data suggest that distinct aspects of the educational climate have a consistent impact on how teachers and students view the school. Furthermore, the intensity of the conditions associated with each variable seems to affect the degree of similarity and difference between student and teacher perceptions.

This section of the environmental inquiry is of particular theoretical significance. Bloom states, "The strategy of research on

environmental variation begins with the attempt to describe and measure the specific characteristics of environments and then proceed to the study of the consequences of various combinations of these specific characteristics."[9] Scholars are studying the relationship of the perceived environment to consequences in the school, such as factors of communication, principal and teacher personality, leadership behavior, student attitudes, job satisfaction and so on. Yet, few research efforts compare perceptions of two distinct populations of the same environment using the same environmental constructs. This section measures specific characteristics of the environment and examines how two populations in the school differ in their perceptions of the climate. Thus, providing not only an account of salient environmental variables that can eventually be researched for their impact on students, but also advancing perceptual incongruency as a dimension to consider in the structuring of environmental theory.

Silberman adds some practical meaning to the findings when he states:

> What educators must realize, . . . is that how they teach and how they act may be more important than what they teach . . . . Children are taught . . . by the ways teachers and parents behave, the way they talk to children and to each other, the kinds of behavior they approve or reward and the kinds they disapprove or punish.[10]

Since teacher behavior is a potentially strong influence on the environment, a teacher's perceptions of the school climate would reflect to a certain extent, his own behavior. The findings presented here show that teachers view conditions and happenings in schools in a different manner than do students. Thus, the environmental perceptions of teachers

might foster behavior which is completely incongruent with what students desire or need. This perceptual interface can produce a conflict between what a teacher hopes to accomplish by his behavior and how that action is actually viewed by the students. The student is the central data source for educational improvement. If discrepancies exist between how teachers and students see the educational climate, there is less chance that teachers will make sensitive and rational decisions about schooling, i.e., curriculum, instruction, and school organization. The gap between how teachers and students see the educational environment along variables that likely influence the development of elementary youth should be closed or at least better understood if schools are to be responsive to learners and if teachers are to communicate their behavior in a productive and accurate way.[11]

The emphasis on the importance of teacher behavior in building compelling educational environments leads to consideration of behavior of the school principal. Considerable evidence exists to indicate that the way the principal behaves has an effect on certain staff conditions, such as teacher morale and professionalism.[12] Some researchers even suggest that teacher performance may serve as a link between the leadership practices of the principal and the academic performance of students.[13] The next section inquires into the relationship between selected teacher and principal behaviors and development of elementary school educational environments.

Principal and Teacher Behavior and Educational Environment

Many educators believe that the school principal is a powerful agent in promoting or retarding improvement in schooling. Spain, Drummond, and Goodlad, for example, state:

> The elementary school principal holds a key position in the improvement of the professional staff. He is the acknowledged and appointed status leader. Whether he wants to or not, he will discover that among his most important functions are those related to "teaching teachers." Whether the school becomes a challenging educational enterprise or a dull and dreary place for children depends not so much upon what is there at the outset of his effort as upon the quality of leadership he provides for his staff.[14]

In a recently completed study investigating issues and problems facing the elementary principal, Goldhammer adds that, "the principal of the specific school is undoubtedly in the key position to guide the processes of change and the implementation of overall goals and strategies which ultimately influence the success or failure of an educational program."[15] Despite the rhetoric, little research has been conducted regarding principal and staff behavior and the relationship to educational environment. The major significance of this final section of the environmental study is that information is provided about the specific nature of this relationship.

The purpose of this section, then, is to examine principal and teacher social interaction or behavior in relation to educational environment in selected elementary schools. Further, an ideal educational environment is proposed and the teacher and principal behavior in schools exhibiting the ideal environment is examined. Of course, no

single environment is appropriate for fostering all behaviors for all learners. Yet, it is possible to postulate a school environment that is designed to foster healthy growth and development for most students, and at the same time permit the building of alternative sub-environments for students with unique needs.

The research approach taken in this aspect of the inquiry utilized the same sample of students, teachers, and schools described in the preceding section. Collective perceptions of students were obtained on the Elementary School Environment Survey (ESES) for determining educational environment. The Organizational Climate Description Questionnaire (OCDQ) was administered to obtain teacher perceptions on four variables of principal behavior (Aloofness, Production Emphasis, Thrust, and Consideration) and four variables of teacher behavior (Disengagement, Hindrance, Esprit, and Intimacy). This instrument, developed by Halpin and Croft, is composed of sixty-four items to which responses are given on a four point scale. By administering the instrument to all teachers in an elementary school, scores are computed along eight variables. Individual teacher scores are averaged to derive a school score for each variable; these school means are then converted to normatively standardized scores by comparison with the national sample.[16] The meaning of each variable used to assess principal and teacher behavior is described below:

Principal Behavior

- Aloofness refers to behavior by the principal which is characterized as formal and impersonal. He "goes by the book" and prefers to be guided by rules and policies rather than to deal with the

teachers in an informal, face-to-face situation. His behavior, in brief, is universalistic rather than particularistic; nomothetic rather than idiosyncratic. To maintain this style, he keeps himself--at least, "emotionally"--at a distance from his staff.

- Production Emphasis refers to behavior by the principal which is characterized by close supervision of the staff. He is highly directive, and plays the role of a "straw boss." His communication tends to go in only one direction, and he is not sensitive to feedback from the staff.

- Thrust refers to behavior by the principal which is characterized by his evident effort in trying to "move the organization." "Thrust" behavior is marked not by close supervision, but by the principal's attempt to motivate the teachers through the example which he personally sets. Apparently, because he does not ask the teachers to give of themselves any more than he willingly gives to himself, his behavior, though starkly task-oriented, is nonetheless viewed favorably by the teachers.

- Consideration refers to behavior by the principal which is characterized by an inclination to treat the teachers "humanly," to try to do a little something extra for them in human terms.[17]

Teacher Behavior

- Disengagement refers to the teachers' tendency to be "not with it." This dimension describes a group which is "going through the motions," a group that is "not in gear" with respect to the task at hand. It corresponds to the more general concept of anomie as first described by Durkheim. In short, this subtest focuses upon the teachers' behavior in a task oriented situation.

- Hindrance refers to the teachers' feeling that the principal burdens them with routine duties, committee demands, and other requirements which the teachers construe as unnecessary busy work. The teachers perceive that the principal is hindering rather than facilitating their work.

- Esprit refers to "morale." The teachers feel that their social needs are being satisfied, and that they are, at the same time, enjoying a sense of accomplishment in their job.

- Intimacy refers to the teachers' enjoyment of friendly social relations with each other. This dimension describes a social-needs satisfaction which is not necessarily associated with task-accomplishment.

Teacher responses to questions associated with the above variables were recorded and a score for each school on the principal and teacher variables was computed. Student responses to the Elementary School Environment Survey were averaged to obtain environmental variable scores for each school.[18]

Relationships Between Groups of Variables

The relationship between educational environment variables and principal and teacher variables was tested by means of canonical correlation. Canonical correlation expresses, in a single index, the interrelationship between two sets of multiple variables. Other more common multivariate techniques, such as multiple regression, assume a single criterion variable and a multivariate set of predictors. Mathematically, the canonical correlation between two sets of measurements is the maximum correlation between linear functions of the two sets of variables. As expressed by Dunteman and Bailey, "canonical correlation involves finding the linear combination of one set of variables and the linear combination of a second set of variables that will result in a maximum correlation between the two linear functions."[19] First, the set of principal variables (Aloofness, Production Emphasis, Thrust, Consideration) was correlated with the set of teacher variables (Disengagement, Hindrance, Esprit, Intimacy). Second, the set of teacher variables was correlated with the set of educational environment variables (Alienation,

Humanism, Autonomy, Morale, Opportunism, and Resource). Third, the set of principal variables was correlated with the set of educational environment variables. Coefficients, or weights, were determined for all variables in each relationship. These weights produced the maximum possible correlation between the two sets of variables under consideration.

The relationship between teacher variables and educational environment variables. The maximum canonical correlation between the set of teacher variables and the set of educational environment variables was .76. This correlation, beyond the .01 level of significance, indicates that these two sets of variables are related in at least one highly significant way.

The assignment of weights to each variable involved in the significant canonical relationship is depicted in Table 4. Inspection of this table reveals the importance of the teacher variables of Hindrance and Disengagement, while the environmental features of Morale and Alienation seem to be primary contributors to the canonical relationship.

The relationship between principal variables and educational environment variables. The maximum canonical correlation between the set of principal variables and the set of educational environment variables was .61. The chi square test of significance revealed that this correlation was significant beyond the .10 level. At this level of significance, there is at least one important way in which the two sets of variables are related.

Table 4

Resulting Weights from Canonical Correlation of Four Teacher Behaviors with Six Educational Environment Features

(R = .76, p < .01)

Teacher Behavior Weights		Environmental Variable Weights	
.78	Hindrance	-.75	Morale
.35	Disengagement	.48	Alienation
.02	Esprit	.18	Humanism
-.005	Intimacy	.09	Resources
		.05	Opportunism
		-.04	Autonomy

Table 5

Resulting Weights from Canonical Correlation of Four Principal Behaviors with Six Educational Environment Features

(R = .61, p < .10)

Principal Behavior Weights		Environmental Variable Weights	
-.99	Thrust	1.23	Alienation
.80	Production Emphasis	.63	Morale
.58	Consideration	.55	Resources
-.21	Aloofness	-.48	Humanism
		-.24	Opportunism
		-.06	Autonomy

Examination of Table 5 reveals that the primary contributors to the relationship were the principal behaviors of Thrust and Production Emphasis and the educational environment variable of Alienation.

The relationship between principal variables and teacher variables. The maximum canonical correlation between the set of principal variables and the set of teacher variables was .60, which was significant beyond the .05 level. Thus, there is at least one significant way in which these two sets of variables are related. The contributions of individual variables to the significantly related canonical variates is displayed in Table 6. The loadings reveal that principal behaviors of Thrust and Consideration provide the major contribution to the relationship, while the primary teacher variables were Disengagement and Intimacy.

Table 6

Resulting Weights from Canonical Correlation of Four Principal Behaviors with Four Teacher Behaviors

($R = .60$, $p < .05$)

Principal Behavior Weights		Teacher Behavior Weights	
-1.53	Thrust	.74	Disengagement
1.10	Consideration	.53	Intimacy
- .29	Aloofness	-.30	Esprit
.16	Production Emphasis	.02	Hindrance

Bivariate Relationships Between Specific Variables

Specific hypotheses were tested by obtaining the Pearson product-moment correlations between isolated principal and teacher variables and selected educational environment variables. In addition, analysis of the canonical correlations indicated that several specific principal and teacher and educational environment variables deserved special attention. The intercorrelations and their associated significance levels are presented in Table .

Testing of priority hypotheses. Five priority hypotheses were considered.

H_1: There will be a significant negative relationship between the Aloofness of the principal and Alienation in the educational environment.

H_2: There will be a significant positive relationship between the Thrust of the principal and Morale in the educational environment.

H_3: There will be a significant positive relationship between the Disengagement of the teachers and Alienation in the educational environment.

H_4: There will be a significant positive relationship between the Hindrance of the teachers and Alienation in the educational environment.

H_5: There will be a significant negative relationship between the Disengagement of the teachers and Morale in the educational environment.

Pearson product-moment correlations and significance levels for each priority hypothesis are highlighted in Table 7. Four of the five hypotheses (H_2, H_3, H_4, H_5) were highly significant. Of particular interest were the extremely high correlations for all three hypotheses

involving teacher variables. Disengagement and Hindrance behavior were both found to be highly related to Alienation in the educational environment, while Disengagement was found to be highly related to Morale in the educational environment. A significant relationship was also found between the Thrust of the principal and Morale in the educational environment. Even though it is not possible to infer causal relationships from correlational findings such as these, it is felt that the four significant findings reported above warrant special attention in future research of a more experimental nature.

Table 7

Pearson Product-Moment Correlations
for Priority Hypotheses

	Hypotheses				
	H_1	H_2	H_3	H_4	H_5
Pearson r	-.14	.44	.58	.61	-.55
Significance level p*	NS	.005	.0002	.0001	.0004

*Two-tailed test. Significance levels p > .10 are marked NS.

Testing of plausible hypotheses. Eight additional hypotheses were developed for the present investigation.

H_6: There will be a significant positive relationship between the Consideration of the principal and Resources in the educational environment.

H_7: There will be a significant positive relationship between the Thrust of the principal and Resources in the educational environment.

H_8: There will be a significant positive relationship between the Aloofness of the principal and Resources in the educational environment.

H_9: There will be a significant negative relationship between the Intimacy of the teachers and Resources in the educational environment.

H_{10}: There will be a significant negative relationship between the Hindrance of the teachers and Resources in the educational environment.

H_{11}: There will be a significant negative relationship between the Production Emphasis of the principal and Opportunism in the educational environment.

H_{12}: There will be a significant negative relationship between the Disengagement of the teachers and Opportunism in the educational environment.

H_{13}: There will be a significant negative relationship between the Hindrance of the teachers and Humanism in the educational environment.

Pearson product-moment correlations for these specific hypotheses are highlighted in Table 8.

Table 8

Pearson Product-Moment Correlations
for Plausible Hypotheses

	Hypotheses							
	H_6	H_7	H_8	H_9	H_{10}	H_{11}	H_{12}	H_{13}
Pearson r	.22	.10	.15	.05	-.26	-.12	.13	-.44
Significant level p*	NS	NS	NS	NS	NS	NS	NS	.005

*Two-tailed test; Significance levels p > .10 are marked NS.

The only significant finding regarded the negative relation between the Hindrance of the teachers and Humanism in the educational environment. It was of particular interest to note the lack of significant findings for those hypotheses involving the environmental variable of Resource.

Bivariate relationships suggested by Canonical Variate Weights. Canonical correlation analysis reported previously revealed that the variables of Thrust and Alienation supplied the highest contribution to the canonical relationship between the principal's behavior and the educational environment. It was consequently decided to examine additional bivariate correlations, using first the principal behavior of Thrust and then the environment variable of Alienation. This examination revealed the following significant relationships between principal and teacher and environmental variables, in addition to those already reported.

There was a significant ($p = .007$) negative relationship between the Thrust of the principal and Alienation in the educational environment.

There was a significant ($p = .001$) positive relationship between the Thrust of the principal and Humanism in the educational environment.

There was a significant ($p = .025$) negative relationship between the Consideration of the principal and Alienation in the educational environment.

There was a significant ($p = .001$) negative relationship between the Esprit of the teachers and Alienation in the educational environment.

An examination of the canonical correlation between teacher variables and environment variables revealed that Hindrance and Disengagement were primary contributors to the relationship. A study of the environmental variables associated with these two teacher behaviors revealed the following additional significant relationships.

There was a significant ($p = .001$) positive relationship between the Disengagement of the teachers and Humanism in the educational environment.

There was a significant ($p = .0001$) negative relationship between the Hindrance of the teachers and Morale in the educational environment.

Other bivariate relationships. Further examination of the correlation matrix revealed six additional significant bivariate relationships between principal and teacher and educational environment variables.

There was a significant ($p = .026$) negative relationship between the Aloofness of the principal and Autonomy in the educational environment.

There was a significant ($p = .02$) positive relationship between the Consideration of the principal and Humanism in the educational environment.

There was a significant ($p = .011$) positive relationship between the Consideration of the principal and Morale in the educational environment.

There was a significant ($p = .004$) positive relationship between the Esprit of the teachers and Humanism in the educational environment.

There was a significant ($p = .004$) positive relationship between the Esprit of the teachers and the Morale in the educational environment.

There was a significant ($p = .005$) positive relationship between the Esprit of the teachers and Resource in the educational environment.

In all, a total of seventeen significant bivariate correlations were obtained by computing the Pearson product-moment correlation between the principal and teacher variables and educational environment variables. The environment variables of Alienation, Humanism and Morale were involved in fifteen of the seventeen relationships. Thrust and Consideration behavior accounted for all but one of the seven significant

relationships involving the principal, while significant correlations were obtained for all teacher variables except Intimacy.

Relationships involving demographic features. Several Pearson product-moment correlations were obtained for relationships of additional interest in the present investigation. It was felt that the exploratory nature of the present study would be buttressed by obtaining correlations between components of the educational environment and such demographic information as age of the principal, number of years the principal has been in education, and school enrollment. It was consequently decided to compute correlations between these features and the educational environment and principal and teacher variables. Inspection of the correlation matrix revealed the following particularly interesting relationships.

> The age of the principal was significantly related ($p < .05$) to the Intimacy (-) of the teachers and Alienation (-), Humanism (+), Autonomy (-), and Morale (+) ($p < .10$) in the educational environment.

The direction of this significant relationship is especially interesting. It is not uncommon for people to place a premium on hiring younger principals, expecting their energy and other characteristics to be translated into vibrant educational programs. The correlations reported above cast serious doubt on this practice.

> The number of years the principal has been in education was significantly related ($p < .05$) to his Aloofness score (+) and to Alienation (-), Humanism (+), Autonomy (-), and Morale (+) in the educational environment.

This finding regards the length of educational experience held by the principal. The significant relation to Aloofness suggests that as the principal gains in experience, he is perceived by his teachers as

increasingly concerned with protocol, policy-making, and maintenance of institutional norms. As determined in the previous section, Aloofness of the principal was significantly related to Autonomy and Opportunism in the educational environment. A useful follow-up study would be to examine more closely the interrelationship between the years of experience of the principal, his Aloofness behavior, and Autonomy and Opportunism in the educational environment.

> The size of the school enrollment was significantly related ($p < .10$) to Morale (-) in the educational environment.

This result should be viewed with some concern by those who are responsible for decisions regarding the size of the enrollment of elementary schools. The findings suggest a fairly significant negative relationship between a school's enrollment and morale in the environment. If low Morale is the result of larger school enrollment, then decisions concerning school size should be made with great care. An experimental study to examine a possible causal relationship is especially warranted in this instance.

Ideal Educational Environments

It was of interest in the present study to advance an ideal educational environment for schools, to identify schools in the sample which seemed to exhibit this profile, and to study the principal-teacher interaction within such schools.

To evolve a hypothetical ideal climate requires consideration of the needs and motivations of those working and learning within the school. A desirable educational environment would be one which would be

likely to foster the growth and development of its' students. The environment described below represents a desirable direction toward which elementary schools should strive.

Before defining the ideal environment, criteria were established for such terms as high, moderate, or low scores. Given these criteria, summarized in Table 9, an ideal educational environment was advanced as follows.

Alienation -- A low score is desirable on this variable. It is important that students feel involved in school affairs, and that school norms are internalized in their academic and other pursuits. Students must feel a sense of belonging and the accompanying concern for other students that is characteristic of schools possessing a low alienation score.

Humanism -- It is crucial that school environments possess a high score on this factor. Reflective of a concern for the integrity and value of the individual, schools must support and inspire creativity in the personal acts of individual student expressions characterized by this atmosphere.

Autonomy -- A moderately high or high score is desirable for this variable. It is important that educational environments support and encourage student independence, and that students are afforded the opportunity to share in the responsibility for their own learning. It is likewise crucial that sufficient opportunities exist for maturity to be developed through sufficient interaction with teachers and other adults.

Morale -- Representative of a friendly and cheerful school atmosphere,

Table 9

Criteria for Terms Used to Describe
An Ideal Educational Environment

Term	Range of Standard (z) Scores	Range of Variable Scores					
		ALIEN	HUMAN	AUTON	MORALE	OPPORT	RESOURCES
High Score: Greater than	+1	38.8	57.0	62.2	59.1	48.8	74.6
Moderately High Score: Greater than	0	32.5	51.4	53.5	51.4	45.8	67.1
Moderate Score: Between	-1 to +1	26.2-38.8	45.8-57.0	44.8-62.2	43.7-59.1	42.8-48.8	59.6-74.6
Moderately Low Score: Less than	0	32.5	51.4	53.5	51.4	45.8	67.1
Low Score: Less than	-1	26.2	45.8	44.8	43.7	42.8	59.6

this environment is described as a happy one in which learners and teachers have a warm relationship. Students should possess a positive attitude toward school, and practice the cooperating behavior associated with such an attitude. Also, it is important that good relationships exist between students and teachers. For these reasons, a high score is desirable on this factor.

Opportunism -- Moderately low or low scores are desired on this variable. Schools should not encourage pupil behavior which adapts to expediency or circumstance. Nor should one gain social or academic success by simply "knowing how to act" with important or influential people. We need schools which foster honest and straightforward behavior, unclouded by the entrepeneurial activity and political maneuvering characteristic of school scoring higher on this factor.

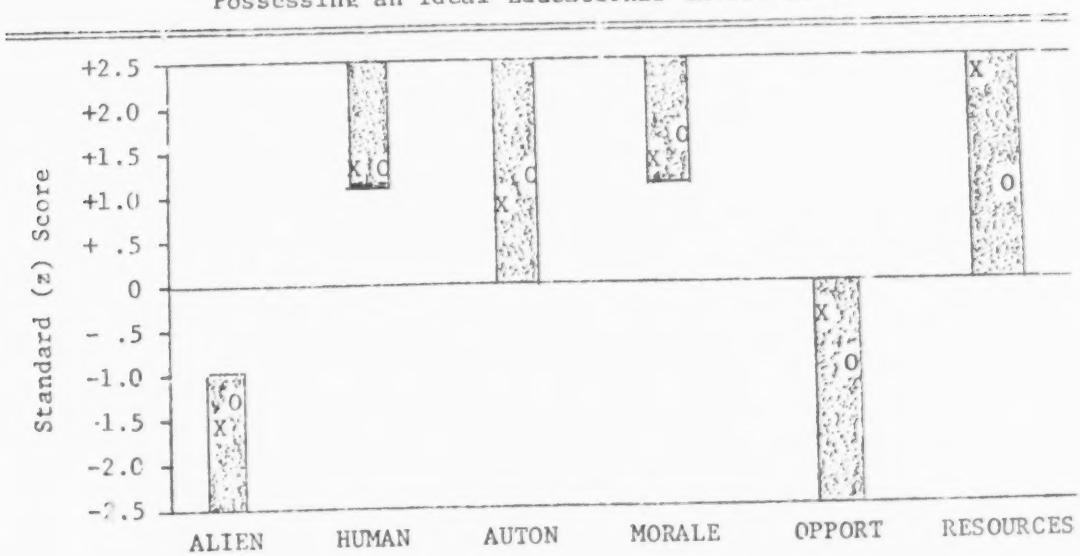
Resources -- A desirable score for this variable is one which is moderately high or high. It is important that schools offer a variety of learning resources to their students, including the availability and friendliness of teachers. Learning resources should, however, be derived from clearly examined goals and instructional purposes. While it is important that schools offer a variety of learning resources, both human and material, the quality of educational environment is not necessarily predicated upon such a single factor.

When the thirty-six sampled schools were examined, two were found to have scores that match the description of an ideal educational environment. The environment scores for these two schools are displayed

in Figure 1, which also depicts the desirable range of scores for each educational environment factor.

Figure 1

Variable Scores for Two Schools
Possessing an Ideal Educational Environment



Educational Environment Variable

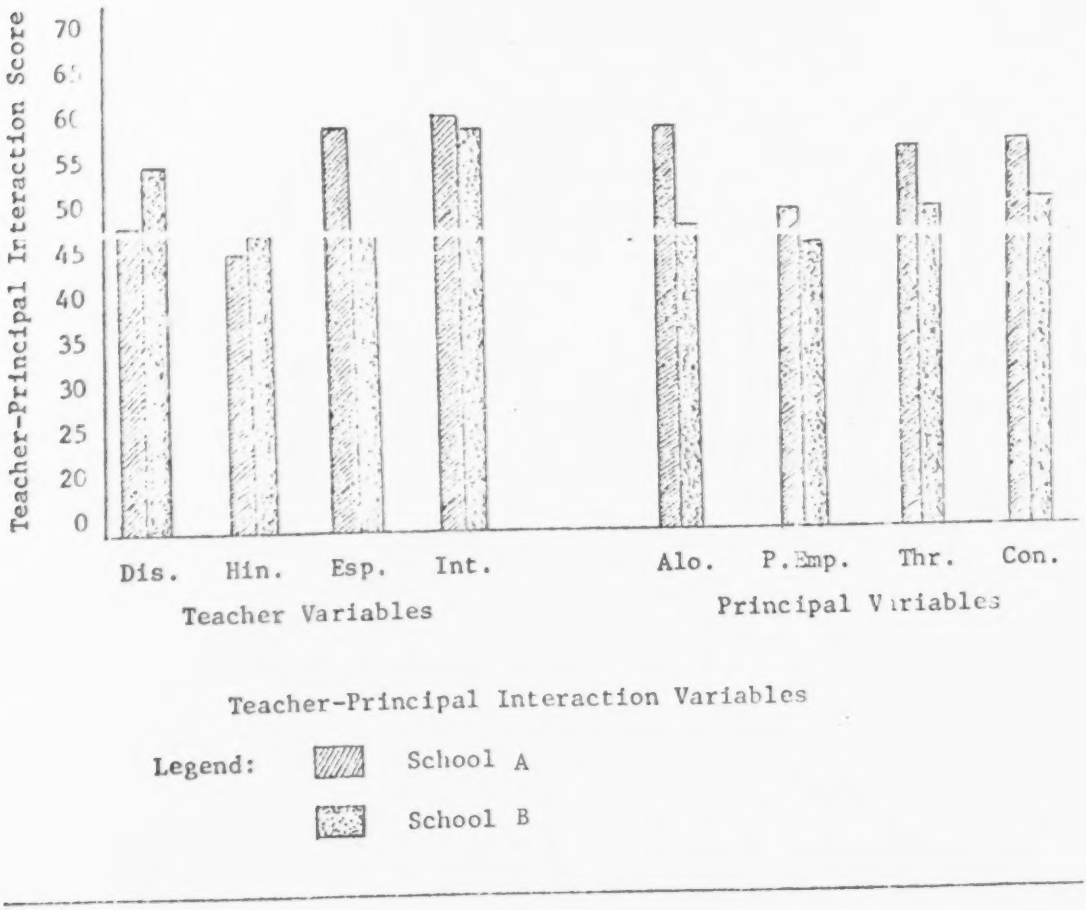
Legend: ▒ - Range of scores for ideal environment
X - Scores for School A
0 - Scores for School B

Discussion

The similarity between the principal and teacher scores for two schools having an ideal environment is striking. The interaction in the selected schools was compared by placing their individual variable scores on a single graph. This profile is displayed in Figure 2. Close

Figure 2

Comparison of Teacher-Principal Interaction in Two Schools Possessing an Ideal Educational Environment



inspection of Figure 2 reveals that for five of the eight principal and teacher variables, less than one standard deviation separates the scores of the schools. Specifically, the behavior of each school principal was characterized by relatively low scores on Production Emphasis and higher scores on Thrust and Consideration. Teacher behaviors were uniformly low on Hindrance and high on Intimacy. These similarities add support for the contention that a relationship exists between desirable educational environments and principal and teacher behavior.

The canonical analysis of principal and teacher behavior and educational climate provided evidence that, (1) a high degree of relationship exists between the behavior of teachers and the educational environment, (2) the set of principal variables was significantly related to the set of teacher variables, and, (3) the behavior of the school principal was related to the environment variables. These findings indicated that it might be productive to explore bivariate relationships. All bivariate relationships were examined by the computation of Pearson product-moment correlations. Inspection of the resulting correlational matrix revealed seventeen significant relationships between principal and teacher behavior and educational environment. Three major findings are summarized as follows:

- The principal behaviors of Thrust ($p < .01$) and Consideration ($p < .05$) were related to Alienation (-), Humanism (+), and Morale (+) in the educational environment.
- The teacher behaviors of Disengagement and Hindrance were significantly related ($p < .01$) to the educational environment variables of Alienation (+), Humanism (-), and Morale (-).
- The teacher behavior of Esprit was significantly related ($p < .01$) to Alienation (-), Humanism (+), Morale (+), and Resources (+) in the educational environment.

Since correlational investigations are concerned only with the degree of relation of two variables, it is not possible to suggest cause and effect inferences from the findings reported above. For example, the finding of a significantly high correlation between Disengagement and Alienation does not enable us to conclude that the Disengagement of the teachers causes students to perceive Alienation in the educational environment. However, the correlational findings do provide indications of useful starting points for inquiry into possible causal relationships. For school personnel, it should be particularly useful to know that it is possible to examine school conditions such as Alienation, Humanism, and Morale, and that these features are highly related, in unique directions, to specific teacher and principal behaviors such as Disengagement, Hindrance, Esprit, and Thrust. Better understanding of how teacher and principal behavior affects educational atmosphere of the school can lead to individual and total staff action that will create an environment conducive to better learning for all participants; students, teachers, and principals. A worthy goal, indeed.

Summary

Three major aspects of educational environment important to school practitioners and researchers alike were discussed in this paper. By examining similarities and differences in school conditions, variance in student and teacher environmental perceptions, and relationships between behaviors of principals and teachers and educational environment, one realizes some of the complexities of environmental research and the potential impact environmental data can have on educational decision-making.

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